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27 January 1984

MEMORANDUM FOR: Deputy Director of Central Intelligence

FROM: Eloise R. Page
Acting Director, Intelligence Community Staff

SUBJECT: Long-Range Planning Related to Critical Technologies

1. The Technology Steering Panel (TSP) has conducted a study as a part of the 1985 Intelligence Capabilities Study - A Review, to develop a methodology that identifies, evaluates and ranks the critical technologies that will be necessary for the Intelligence Community to perform effectively in the future. We are in the final phase of this study, and this memo is intended to give you a "heads up" for budgetary planning purposes.

2. A synopisis of the study is presented below in bullet format. Additional details are in the annexes to this memo and more complete details are in the study.

- Effort was guided by an ad hoc panel (Technology Steering Panel) (See Annex 1)

- Intelligence Community shortfalls in the 1985-1995 time period were developed by means of meetings and discussions with Senior Community managers (See Annexes 2 and 3)

- Technologies critical to the Intelligence Community in the 1985-1995 time period were identified and a methodology was developed to evaluate the applicability of these technologies to the projected shortfalls and rank the technologies in order of applicability (See Annex 4)

- The results of the study indicate that the most pervasive technology areas where advancement would satisfy the DCI's Goals and Objectives are:

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(See Annex 5)

- In addition to the general technology areas presented above there are certain specific technologies that were identified as particularly applicable toward satisfying the DCI's Goals and Objectives. They are:

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3. It is recommended that this information be presented to the NFIP Program Managers through the program guidance mechanism, and that they be asked to:

- review their R&D programs to ensure that these technologies are adequately leveraged;

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- o propose new initiatives related to the technologies that they believe are inadequately leveraged; and
- report back to you on the health of these technology developments within their particular programs.

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Eloise R. Page

Attachments:
a/s

APPROVED:

01 FEB 1984

/S/ John N. McMahon
Deputy Director of Central Intelligence

Date

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ANNEX 1

TECHNOLOGY STEERING PANEL

The Technology Steering Panel (TSP) is ad hoc and comprised of the following:

[redacted] Chairman, Technology Steering Panel 25X1

[redacted] Chairman, Economic Intelligence Committee 25X1

[redacted] Chariman, Joint Atomic Energy Intelligence Committee 25X1

[redacted] Chairman, Scientific and Technical Intelligence Committee 25X1

[redacted] Chairman, Technology Transfer Intelligence Committee 25X1

[redacted] Chairman, Weapon and Space Systems Intelligence Committee 25X1

[redacted] NIO/Science and Technology 25X1

[redacted] Executive Secretary, Technology Steering Panel 25X1

[redacted] 25X1

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ANNEX 2

DEVELOPMENT OF INTELLIGENCE COMMUNITY SHORTFALLS - 1985-1995

The study expands on the intelligence challenges identified in the 1985 Intelligence Capabilities Study - A Review, by means of a series of meetings and discussion sessions with senior Intelligence Community managers. These meetings served to identify intelligence shortfalls (See Annex 3) that Community management believes will exist in the 1985-1995 time period, considering current planning. The managers that met with the TSP were: 25X1

Mr. Evan Hineman, CIA/DDS&T

Mr. John Stein, CIA/DDO

[redacted] NSA/DDO 25X1

LTG James Williams, D/DIA

MajGen John Marks, ACS/I; AF

MG William Odom, ACS/I, USA

RADM John Butts, DNI, USN

Mr. Robert Gates, CIA/DDI

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[redacted]

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ANNEX 3

INTELLIGENCE COMMUNITY SHORTFALLS - 1985-1995

The following intelligence shortfalls (which we term functional objectives) were determined to be the most pervasive when considering the DCI's Goals and Objectives:

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The study identifies other important improvements that tend to be more focused.

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ANNEX 4

METHODOLOGY

The methodology identified a framework within which we could measure the extent to which developing technologies could contribute to the resolution of projected substantive intelligence needs across the intelligence throughput process. Twelve technology areas incorporating 62 specific technologies were identified. A quantitative procedure was developed to measure the effectiveness of the application of these technologies to the DCI's Goals and Objectives. The procedure identified impact and risk criteria, applied these criteria to each technology for each DCI Goal, and developed a figure of merit for each specific technology and technology area (by aggregating specific technologies within an applicable area). The figure of merit is then a measure of the effectiveness of each technology to address a particular intelligence need with due consideration given to the risk involved in developing and applying the technology.

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ANNEX 5

RESULTS OF ANALYSIS

The attached table presents the results of the analysis (the table presents a figure of merit (impacts divided by risks) for each technology area, indicating its applicability to a particular challenge area. Data storage technology, power sources technology, mathematics and cryptology technology and sensor technology represent the highest potential contribution to the DCI's Goals. These technologies are discussed in the following paragraphs.

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Also presented in the attached table is a ranking of the technology areas, assuming the DCI Goals are of equal importance. Within each of these technology areas there are specific technologies that are very effective in satisfying the DCI's Goals. These are: 25X1

Artificial intelligence does not appear as a specific technology. However, in the evaluation procedure previously described, the application of artificial intelligence within and to the particular technology or technology area was considered. Current and projected efforts within each of these technologies should continue, and as the artificial intelligence technology matures, increasing emphasis (and resources) should be placed on its application to the Community problems.

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